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WHAT CAN CRITICAL INCIDENTS TELL MANAGEMENT?

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George W. Mayeske

Francis L. Harmon

Albert S. Glickman

PRS 64-5
September, 1964

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George W. Mayeske

Francis L. Harmon

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Personnel Research Staff

Office of Personnel

United States Department of Agriculture

Washington, D. C.

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SUMMARY AND HIGHLIGHTS

This report describes the critical incident method of determining the performance requirements for an occupation and developing a personnel performance information system. The advantages of using performance records as source documents for many kinds of personnel actions are explained. Various ways in which management can use the information contained in pools of critical incidents to aid decision-making in such areas as career programming, spotting training needs, evaluating the relevance of training courses, and appraising the effects of program and policy changes are also illustrated.

Albert S. Glickman
Chief, Personnel Research Staff

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WHAT CAN CRITICAL INCIDENTS TELL MANAGEMENT?

MOHR

MOHR stands for Management of Human Resources. It is a program in the U. S. Department of Agriculture. The goal of MOHR is to provide the means to make better decisions affecting the people who work for the nation in the Department - decisions that contribute to the fullest development of each employee and to the most effective use of human resources by Department management.

To provide the research support needed to achieve the objectives of MOHR, in 1962 a Personnel Research Staff was established in the Department's Office of Personnel. The capabilities of USDA electronic computer facilities are being used to the maximum extent feasible to increase the efficiency of accumulating and processing personnel information and to achieve its most timely and effective use.

CRITICAL REQUIREMENTS OF PERFORMANCE

During the past two years research aimed at improving USDA personnel performance information systems has been a major priority effort. To the extent that in any occupational area our information about the requirements for performance and the achievement of those requirements is inadequate so in large part is management's ability to answer the question: "How are we doing?"

The study of any occupational area starts with the question: "What are the critical requirements of performance for this occupation?"

We get the facts by going to the people directly involved in doing and in supervising the work. We ask each of them to describe critical incidents that they have observed.

What are critical incidents?

Critical incidents involve specific actions or behaviors that have actually been observed. They do not involve personality labels or lists of traits. An effective critical incident leads to significantly better than average accomplishment of a particular aspect of a job, assignment, mission or responsibility. An ineffective incident leads to significant delay, mistakes, omissions, lack of accomplishment, or obstacles to achievement of work. One might say that an incident is called critical because it makes a real difference. The judgments are based upon results--

the outcomes of peoples' actions and behaviors and the products of their work. They are judgments made by people at various levels, but always by the people in the best position to observe: those closest to the operational situation, those best situated to base their judgments upon the objective facts involved, within human limits of perceptual fallibility.

An individual critical incident is _not an evaluation_ of a person. It is an _observation_ of "what happened," what action took place, and what were its consequences.

In the usual procedure for gathering incidents, one person contributes only a few. Typically he is asked to write up eight of them--two effective and two ineffective incidents involving "job or technical competence" and two of each kind involving "working with people." Because the incidents are collected from many people--enough to provide a good sampling of the job or job family under consideration--it is comparatively easy to assemble a pool of from five hundred to several thousand incidents, depending upon the size of the occupational group in the organization. At this stage, certain information is requested about the people involved in each incident to help in carrying out statistical studies of group data for research and management purposes; but complete individual anonymity is assured.

Determining critical performance requirements

After the incidents have been collected, the next step is to sort them according to the different _critical performance requirements_ that they represent. There are no predetermined categories. The critical requirements for the occupation grow out of the content of the incident pool. About a hundred critical requirements, are usually generated approximately divided equally between effective and ineffective categories.

The related critical requirements are then grouped together to identify _critical performance areas_. There are generally eight to twelve of these.

The Performance Record

A Performance Record form for an occupation is organized by performance areas. Within each performance area the related critical requirements are listed--effective behaviors on one side, ineffective on the other. Spaces are provided under each performance area for the supervisor to make notes of critical incidents at the time they occur. He will have a Performance Record for each of his subordinates. Exhibit 1 shows such a form, developed for Automatic Data Processors in USDA.

Experience in industry has shown that on the average, supervisors of groups of up to thirty employees need only five minutes a day to make entries for the whole group. This is so for two fundamental reasons. First, most of the things that employees do fall within the broad range of normal, average, typical, satisfactory, or acceptable performance. Critical incidents, that "make a real difference," are rarer. Not many are observed, and few employees are likely to be involved on any given day. Some days there may be none. Secondly, most of the basic descriptive material is already in the Performance Record. A short note in the appropriate performance area, preceded by the code letter of the critical requirement involved, is all that is needed to insure that the information will not be "lost" (forgotten) and that the incident can be recalled later on.

Let us look at the examples on the first two pages of Exhibit 1, the ADP Performance Record for Al P. Datum. In performance area 2, "Taking Responsibility and Initiating Action," Mr. Datum's supervisor has noted two ineffective incidents that occured during November. The first fitted best under critical requirement 2.c. It involved failing to meet a deadline for time and attendance (T&A) data. The second, in category 2.b., reflects an incident in which he scheduled a dental appointment, but neglected to advise the supervisor of his plans in time to make arrangements for someone else to continue with the task while he was absent. All of this information was neatly summarized in two short phrases. On the other hand, under performance area 3, "Responding to the Need for Extra Effort," two incidents are recorded. In one instance on September 17, Datum "helped to debug program." The categorization as critical requirement 3.C. indicates that this action represented voluntary help outside of his regular duties. On another occasion on December 2, the entry indicates that Datum worked on his own time on the night shift to complete a task.

These examples should be sufficient to provide some "feel" for the use of critical incidents and the Performance Record in an operational context.

PUTTING CRITICAL INCIDENTS TO WORK

Personnel performance information for decision-making

Up to this point we have concentrated upon providing an understanding of what critical incidents are, and how they are used to define the critical performance requirements of an occupation and to develop a Performance Record. Hopefully, experienced managers among our readers have begun to perceive the applicability and utility of the information that becomes available in this way at many points across a broad range of management activities.

If we consistently assemble and maintain a store of information on individuals' performance at work, we will have available the essential facts we need to arrive at any of the administrative personnel decisions we are

EXHIBIT I

PERFORMANCE RECORD
AUTOMATIC DATA PROCESSORS

PERIOD COVERED	
FROM	TO

INSTRUCTIONS: Each supervisor shall record and accumulate the critical incidents for each employee supervised. The supervisor shall classify each incident in one of the sections on this form, note the date, the letter of the example it most nearly resembles and enter brief identifying information (use section IV if additional space is needed). The record will serve as the basis for periodic interviews.

NAME OF EMPLOYEE *(Last)* *(First)* *(Middle Initial)* DATUM AL P.	TOTAL YEARS FEDERAL SERVICE
POSITION TITLE	GRADE
HEADQUARTERS	OFFICIAL STATION

I CARRYING OUT ASSIGNMENTS

1. PERFORMING TASKS ACCURATELY

A. Made special error check before beginning task; B. Detected error in program, data, or equipment; C. Accomplished task in spite of limited experience; D. Completed task with minimal or incomplete information; E. Obtained information or assistance when needed.

a. Failed to detect error in program, data, or equipment; b. Performed specific operation or task incorrectly; c. Made errors under time pressure; d. Failed to check requirements of job; e. Failed to obtain additional information or assistance when needed; f. Misinterpreted or failed to follow instructions, standard procedures.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED

2. TAKING RESPONSIBILITY AND INITIATING ACTION

A. Wrote or modified program to meet special need; B. Suggested more efficient method or procedure; C. Initiated steps to improve own skill or job performance; D. Completed job with minimum of supervision.

a. Delayed or failed to carry through on task; b. Did not provide for covering job during absence; c. Failed to meet promised deadline.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED
			11/2	c	T&A data
			11/18	b	Dental appointment

3. RESPONDING TO NEED FOR EXTRA EFFORT

A. Worked on own time to complete task; B. Worked rapidly; C. Voluntarily helped with task outside of regular duties.

a. Refused request to work overtime; b. Required excessive time to complete task.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED
9/17	C	Helped to debug program			
12/2	A	Finished Job X			

II WORKING WITH OTHERS

4. COOPERATING WITH OTHERS

A. Helped fellow worker(s); B. Coordinated with another individual or group; C. Explained task to relief operator.

a. Failed or refused to help fellow worker(s); b. Failed to coordinate with another worker or group; c. Did not explain task to relief operator; d. Interfered with work of another employee or group; e. Gave inadequate or incorrect information; f. Did not carry fair share of work.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED

5. GETTING ALONG WITH OTHERS

A. Remained pleasant and tactful under provocation; B. Gave credit for help received; C. Accepted correction from supervisor.

a. Argued with or antagonized another; b. Took credit for another's idea or work; c. Resisted or disobeyed supervisor; d. Blamed another for his own mistake.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED

III MANAGING WORK AND SUPERVISING OTHERS

6. PLANNING AND ORGANIZING WORK

A. Organized for efficient use of personnel or equipment; B. Anticipated requirements of job; C. Provided in advance for contingencies.

a. Set up inappropriate assignments or work schedules; b. Did not provide efficient maintenance system for materials, supplies; c. Did not provide for contingencies or requirements of situation; d. Misplaced data, or equipment.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED

7. MOTIVATING SUBORDINATES

A. Gave recognition for superior skill or job performance; B. Criticized constructively; C. Backed up subordinates; D. Settled difference among employees.

a. Made excessive demands upon subordinates; b. Criticized harshly or abusively; c. Criticized in presence of others; d. Acted in arbitrary manner.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED

8. TRAINING AND DEVELOPING SUBORDINATES

A. Delegated responsibility; B. Gave help or training when needed; C. Helped subordinate develop own skill; D. Explained specific requirements of job; E. Provided background information.

a. Refused to delegate responsibility; b. Did not provide help or training when needed; c. Did not explain why subordinate's work was incorrect; d. Did not explain specific requirements of job; e. Failed to follow up on subordinate's performance of assignment.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED

9. MAINTAINING COMMUNICATIONS

A. Explained reason for decision affecting employee(s); B. Notified employees of impending changes; C. Invited comments and opinions.

a. Did not explain reasons for decision affecting employee(s); b. Failed to notify employees of impending changes; c. Ignored suggestions of subordinate; d. Refused to clarify or answer questions.

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED

IV MISCELLANEOUS

DATE	ITEM	WHAT HAPPENED	DATE	ITEM	WHAT HAPPENED

called upon to make. The summation of the pluses and minuses of individual performance in a given type of work can provide us with an improved comprehension of the truly critical requirements of such work--the requirements that most influence success and failure in achieving our objectives. We will reduce the burden of separately maintaining large overlapping files of performance information for each administrative application (e.g. awards, transfers, promotions, annual ratings, training needs). The same source material will then be available upon which judgments, evaluations, recommendations and decisions can be based, and the component elements can be analyzed, weighed, and integrated as appropriate to the particular use involved.

We are talking about a personnel performance information system, not in isolation, but as part of the larger management system: (1) for counseling with employees and (2) for making vital management judgments and decisions upon which the viability of an organization depends.

From here on we will explore in greater depth some specific ways supervisors and managers can make use of the critical incident technique and critical incident records.

What can critical incidents tell management?

Our answers can be developed in two areas: (1) individual supervisor-subordinate relations; and (2) general personnel management functions and programs.

Individual supervisor-subordinate relations

Accumulating information about performance in the critical requirements of work continually rather than intermittently, provides a more objective record of information. The pressures to "mold" the information are less than when it must be pulled from one's memory file only when a report on an individual is needed for some specific purpose. This is because the ends to be served by the report tend to determine what information will be retrieved and offered on that occasion. Contrary to good practice, the supervisor usually makes his judgment and then finds "facts" to support it, instead of the other way around. So, if all performance information is presented as part of administrative reports, there remains no independent source of data collected under "neutral" conditions.

Critical incidents, regularly recorded as they occur, provide a more meaningful kind of performance information in a more consistent frame of reference, because the reference is always to the ongoing work situation.

A supervisor's note in a person's performance record is neither a punishment nor a reward. The supervisor is not attempting to evaluate the person when he makes a note for the record. He is only evaluating the quality of a specific action or performance. The notes are merely reminders of facts to be considered in talking to the employee about his work, and when personnel actions are to be taken later on. They are as much the property of the employee as of the supervisor. If the employee wants to use these notes to improve and develop himself, they are available for discussion with his supervisor. The employee makes the record. The supervisor only keeps it.

Since observations are noted when they happen, the information is less subject to forgetting and errors of recall. Since these critical incidents are identified with the normal work situation, being the events that are the focus of normal superior-subordinate relationships--praise, correction, training, planning, et cetera--both parties are likely to develop a better balanced perspective on these actions and occurrences. Consequently the significance of individual incidents is less likely to be inflated out of proportion to their place in the total picture of performance.

Since this is "live" information, expressed in job-related language, it is less susceptible to the stereotyping that characterizes the use of typical rating sheets, and the resulting frustrations for the supervisor and the supervisee induced by inflexibility. Changes in the kinds of incidents accumulated call attention to changes in a job's critical requirements, thus reducing the lag in recognizing that performance is being appraised against standards that natural evolution has fossilized. Likewise changes in performance of the individual are more clearly visible and interpretable.

Because the incidents deal with observable behavior and its results, it is possible to discuss performance, and even to evaluate it on a less emotion-provoking level than is so often the case when inability to recall specific illustrative incidents leads to generalized and questionable personality analysis.

Furthermore, the summaries and analyses of an individual's performance history that underlie such necessary evaluations and decisions as are involved in performance review, career planning, promotion rosters, and training evaluations, are less likely to be looked upon as bureaucratic procedures, pretty much divorced from the realities of day-to-day experience and the normal relations between a man and his boss. They give operational expression to a philosophy of management that a man and his boss can know what is the job that needs to be done and can recognize when that job is done well and when it is done poorly--in terms of results. This can mean improvement not only in job performance, but in the quality of supervision as well.

In these circumstances, while forms and procedures are developed for the practical purpose of facilitating the use of information, the forms are clearly subordinated to the substance of the information system. When the norm is established that the supervisor responds promptly to the strengths and weakness of job performance, communicates with the employee as appropriate, and notes the incident for further reference as well, the occasions when formal review and evaluation take place are less likely to be regarded as uncomfortable special occasions during which both must self-consciously communicate with their guards up. The "summing up" is more likely to be looked upon in a healthy fashion as the natural consequence of shared experience, as an expression of mutual interest in each other's welfare, and as part of a jointly held aim to further the success of the outfit of which both are a part.

Where this kind of climate is developed, the feeling of "participation" by the employee is more likely to be genuine. He is more likely to feel - and rightly so - that he signficantly shares and influences the decisions affecting him and his work. Consequently, even the decisions of others affecting him, although not perfect, are more likely to be accepted as being the result of careful thinking, and as part of the responsibility of supervisors and management to make decisions.

General personnel management function and programs

Apart from those situations of an individual nature, the pools of critical incidents that are accumulated offer valuable knowledge to managers. At two stages of the accumulation process pools of incident data become available. First, there is the pool of incidents used in the original development of critical requirements and performance records--the raw material. Then, after a performance record is put in use, it becomes possible to utilize data concerning the relative frequency with which supervisors note incidents, in the different categories of critical requirements and critical performance areas. In either case, given supplementary information on such characteristics of the groups involved as grade level, length of service, age, sex, and occupational specialty, useful comparisons can be made. Again let us look at some examples.

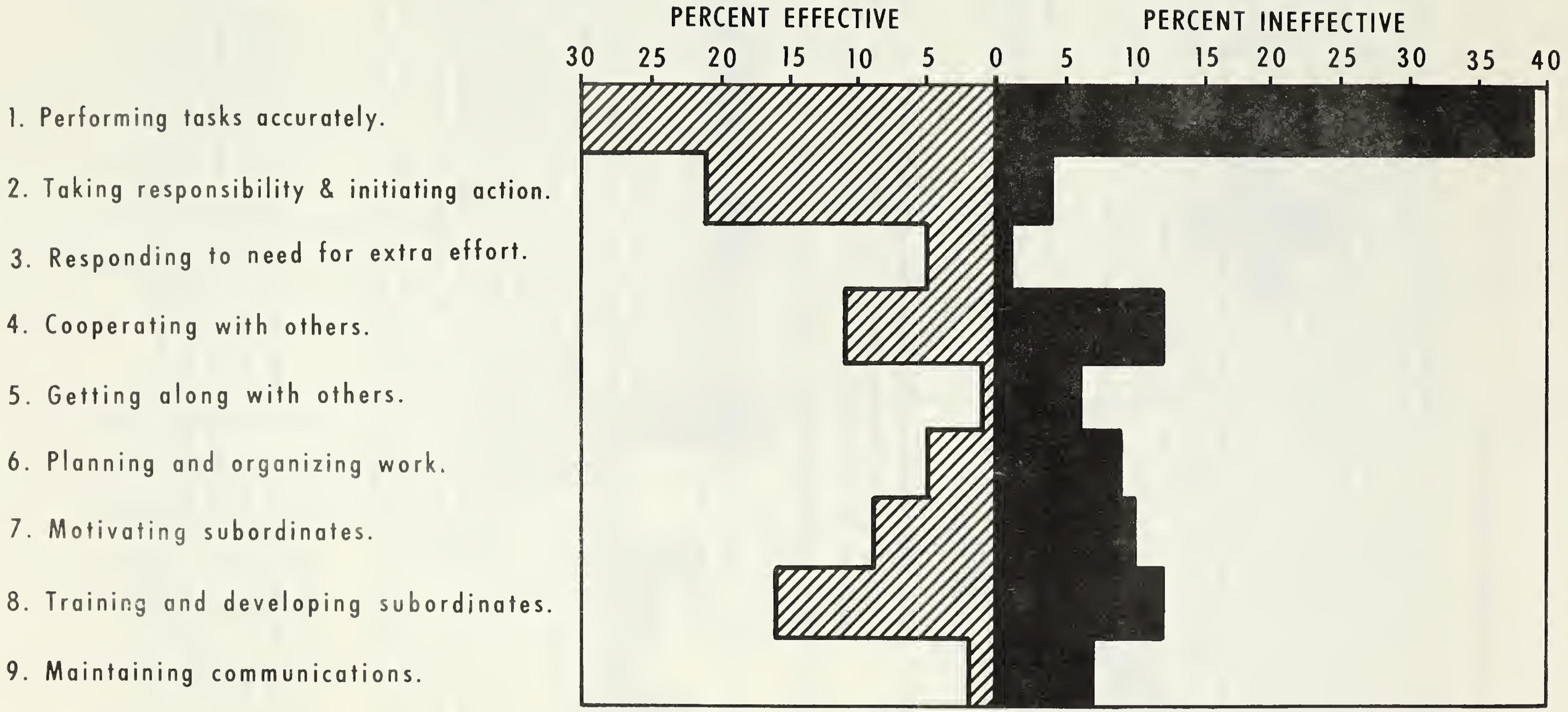
Taking the pulse of the organization

What are the areas of particular strength or weakness in the functioning of the organization as a whole? Consider Exhibit 2. It is based upon a sample of 546 critical incidents drawn from a pool of more than a thousand which were contributed by the Data Processors. From it we observe that relatively high concentrations of both effective and ineffective incidents occur in the areas of "Performing Tasks Accurately," and "Training and Developing Subordinates." "Taking Responsibility and Initiating Action," however, shows a higher concentration of effective than of ineffective incidents, while the reverse is true of "Maintaining Communications." On the other hand, relatively few incidents of either type occur in the areas of "Responding to Need for Extra Effort," and "Getting Along with Others."

The significance for management of a tabulation like this is obvious. It pinpoints the areas where further analysis might be profitable. Thus, by comparing the distribution of critical incidents with present statements of job requirements, management may consider points at which the latter need to be revised. On the other hand, the comparison may validate the statement of job requirements.

EXHIBIT 2

PERCENT OF EFFECTIVE AND INEFFECTIVE INCIDENTS BY PERFORMANCE AREAS



Making promotion decisions

How do the critical requirements of the job change with GS level? Exhibit 3 shows the proportions of incidents at different grade levels for each performance area. At the lower levels, the greatest proportions of incidents involve "Performing Tasks Accurately," and "Taking Responsibility and Initiating Action," while at the higher levels "Training and Developing Subordinates," "Planning and Organizing Work," and "Cooperating with Others" account for the greatest proportion of incidents. Of course, it is well known that there is a greater involvement in planning and supervision at the higher levels. Nevertheless, an analysis of critical incidents helps to define the nature and content of the problems that occur at these different levels, thus providing management with more specific information than might otherwise be available.

Two earlier studies in this series[1] dealt with some empirical analyses of the decision-making process in promotion recommendations, and outlined certain assumptions that are implicit in any promotion appraisal plan. These assumptions are:

(1) That the supervisor has the opportunity to observe behaviors of his subordinates that are indicative of how well they will perform at the higher level for which they are being considered;

(2) That the supervisor does make these observations and records them; and

(3) That this record is a basis for the promotion recommendation that the supervisor makes.

When incidents are classified and tabulated as in Exhibit 3, it quickly appears that the supervisor may not have the opportunity to observe behaviors at one level that are indicative of how well the employee will perform at a higher level because there may be little or no opportunity for these kinds of incidents to occur. As Exhibit 3 clearly shows, "Planning and Supervising" incidents, which preponderate at the higher grade levels occur very infrequently at the lower levels. Hence, in making a selection for a supervisory job, a promotion board might wish to supplement performance information with test data to get a better prediction of how well a person might be expected to function as a supervisor.

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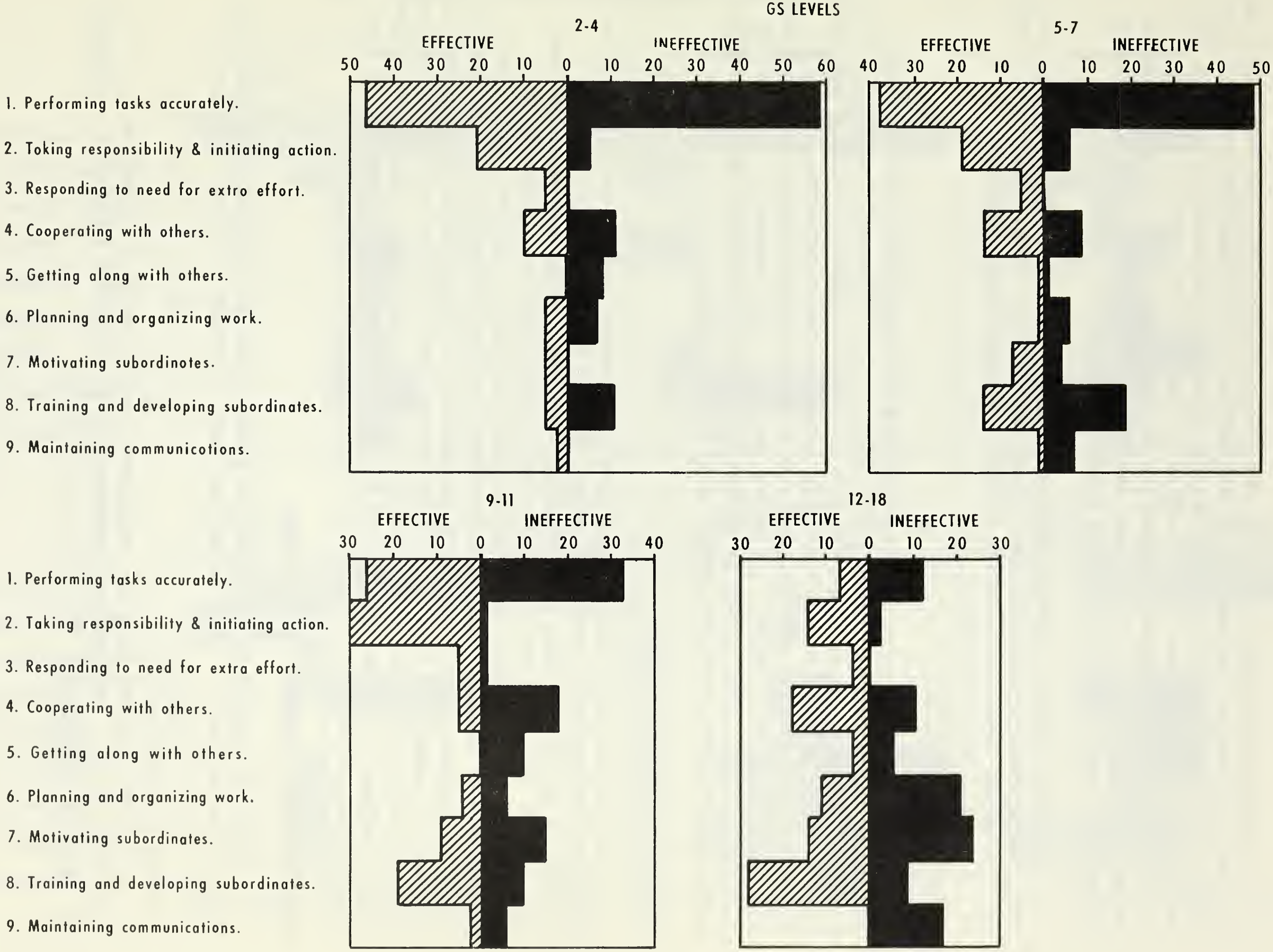
[1] See Mayeske, G. W. Promotion to GS-11 and GS-12 Soil Conservationist: Some Empirical Analyses of the Decision-Making Process, PRS 63-6, U. S. Department of Agriculture, October, 1963; and Mayeske, G. W. Promotion to GS-13 Forester: Some Empirical Analyses of the Decision-Making Process, PRS 63-5, U. S. Department of Agriculture, August, 1963.

EXHIBIT 3

PERCENT OF EFFECTIVE AND INEFFECTIVE INCIDENTS WITHIN EACH GRADE LEVEL FOR EACH PERFORMANCE AREA



A similar conclusion emerges when we classify the incidents according to job functions or series, as in Exhibit 4. It is readily apparent from this exhibit that very different kinds of incidents occur in some of the series. The most dramatic difference is between the Administrative (330) series, where the greatest proportion of incidents occur in performance areas 4 through 9, and the Operational (332 and 359), where the greatest proportion occurs in performance areas 1 through 3.

Exhibits 3 and 4 clearly demonstrate the different kinds of incidents and, consequently, the different kinds of critical requirements that occur for different levels and series within the same career network.

Planning job rotation

A job rotation plan can be developed by classifying the incidents according to functional areas as in Exhibit 4. This would enable participants in the plan to gain experience in certain kinds of problem situations that would enhance their performance later in their careers. Thus, in Exhibit 4, an obvious possibility would be rotation between the Operational and Administrative series. An added value in this approach to rotation planning is that the incidents themselves provide concrete examples of the kinds of problems that the employee will encounter.

Spotting training needs

Just as an individual employee's performance record can be used to diagnose his specific training needs, so too can a pool of critical incidents collected from many employees point up training needs of the group as a whole. This is particularly true when the incidents are classified according to function or program areas. Inspection of the incidents may suggest curriculum content, as for example, certain supervisory practices that need to be emphasized or re-emphasized. Indeed, the incidents themselves might serve as source material for problem situations to be incorporated into a supervisory training program. These would have the advantage of being couched in the language and circumstances of the operational situation in which the supervisors must function.

Determining relevance of training

Critical incidents can also be used to assess and validate existing curriculum content[2]. Let us suppose that a course in "Data Processing"

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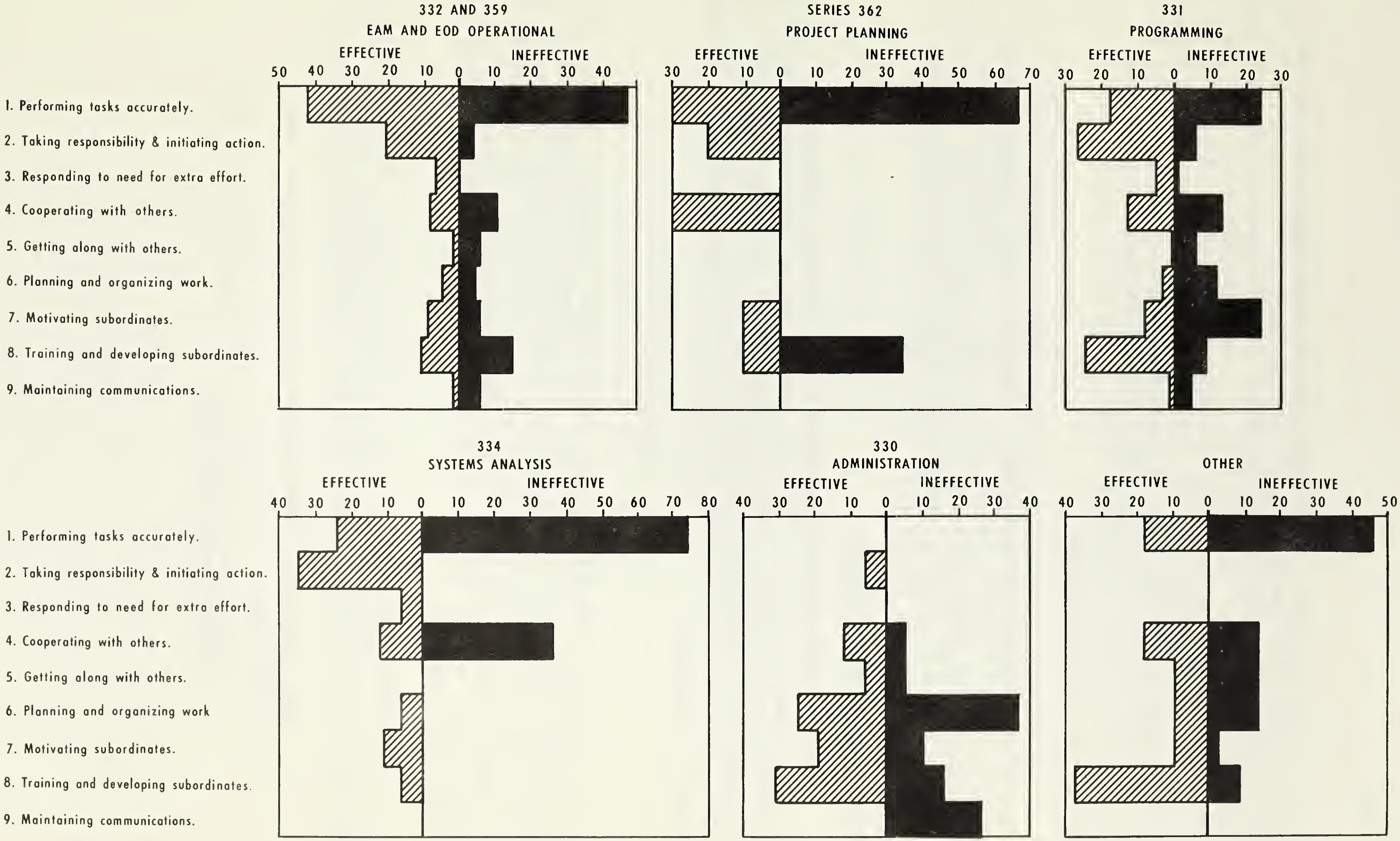
[2] An application of this technique is described in Glickman, A. S. & Vallance, T. R. Curriculum Assessment With Critical Incidents. Journal of Applied Psychology, vol. 42, no. 5, 1958.

EXHIBIT 4

PERCENT OF EFFECTIVE AND INEFFECTIVE INCIDENTS WITHIN EACH SERIES FOR EACH PERFORMANCE AREA



covers three topics: (a) Machine Capacity and Capability, (b) Instruction Format, and (c) Program Testing. The incidents in the pool would be sorted into these three subject-matter areas. If necessary, an "Other" category might be set up for incidents that did not fit elsewhere. Each incident would then be checked according to whether the skills relevant to it were "Taught" or "Not Taught" in the course. Since the same incidents would already have been classified by performance areas, the relevance of course content to critical job requirements could be clearly determined.

Evaluating program changes

Still another potential use for critical incidents is in the evaluation of program and policy changes. Suppose that a certain organizational or procedural change is introduced in order to alleviate some problem situation. Incidents collected after the change has been introduced can be compared with those in the present incident pool, and a statement as to the efficacy of the change then can be made.

Analyzing awards programs

The pool of incidents can also provide useful information in connection with an awards program. Thus, one could compare the critical incident or incidents upon which the award recommendation was based with other effective incidents for that particular level and series. In this way, a clearer idea of the relative significance of incidents in determining award recommendations might be obtained.

CONCLUSION

It should be evident by now that critical incidents can tell management many things that it needs to know. The information derivable from an analysis of critical incidents is comparatively free from subjectivity and bias, because it is based solely upon the observed facts of actual job performance. At the same time, it is more precise, more specific, and more relevant to the requirements of the job than similar information obtained by older and more traditional methods.

The information available in critical incidents can contribute in many ways to management improvement and more effective manpower utilization. We close with a list of some of the more significant possibilities:

1. More effective communication between supervisor and subordinate:
    a. A better understanding by each individual of the requirements of his job;

   b. A better understanding of the means by which he can improve his own job performance so as to increase the possibility of achieving his personal goals and those of the organization;

2. More effective supervision:

   a. A better understanding by the supervisor that developing people is a fundamental responsibility;

3. Improved quality of training:

   a. Increased likelihood that talents will be discovered and developed;

   b. Increased precision and timeliness of corrective and remedial action;

4. Better motivation and morale:

   a. Increased opportunity for achievement to be fairly recognized;

   b. Increased sense of participation in and identification with organization goals and program missions.